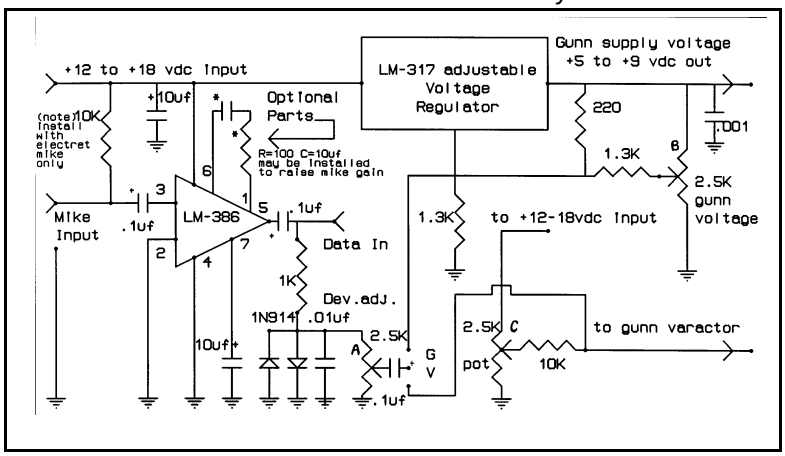
Power-Supply/Modulator Kit for WBFM microwave by SHF Microwave Parts Company

This kit is designed to take +12 to +18 vdc input, and output an adjustable +5 to +10 vdc to operate either a 10 or a 24 ghz Gunn source for WBFM Ham operation. At the same time, it can modulate the Gunn source or DRO with microphone audio from either an electret or a dynamic microphone, or it can modulate it with TTL data at rates up to 56Kb. To use a dynamic mike, just omit the 10K resistor going to the mike input terminal. To use TTL data, supply the data to the pad marked “data”, using ground/earth as common and remove the .1 ufd capacitor going to pin 5 of the LM-386. Positive TTL transitions only here.



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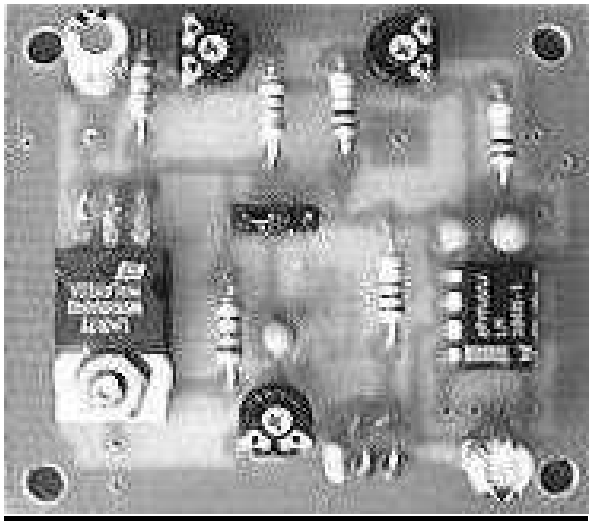

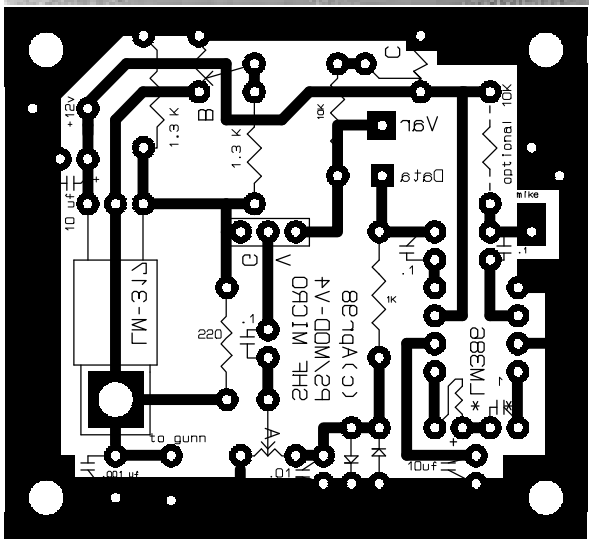

Parts list for Ps/Mod4

1 ea. Printed-Circuit Board
3 ea. 2.5K potentiometers
1 ea. LM-386 Integrated Circuit
1 ea. LM-317 Integrated Circuit
2 ea. 1N914 silicon diodes
1 ea. 4-40 nut
1 ea. 4-40 bolt
2 ea. 10K 1/4w resistors
1 ea. 1K 1/4w resistor
2 ea. 10 ufd electrolytic capacitors
3 ea. .1 ufd tantalum capacitors
1 ea. 3-pin block
1 ea. jumper for above block
1 ea. .01 ufd ceramic capacitor
2 ea. 1.3K 1/4w resistor
1 ea. 220 ohm 1/4w resistor
1 ea. .001 cap

Instructions for building the gunn source power-supply/modulator kit

(1) Clean and shine pcb traces so soldering is easy. A little Soft-scrub or SOS is ok.

(2) Place pc board in front of you, with traces down. Orient board the same as the picture on the other side of this paper.

(3) Install LM386 from top-side, putting dot above pin number 1 printed on pc board and solder pins.

(4) Install LM-317 from top-side, bending pins as needed, and using bolt/nut to fasten. solder.

(5) Install 3 potentiometers ins spots labled “A” “B” and “C”, and solder pins.

(6) Install 3-pin jumper block as shown, solder, and install black jumper in desired position. Too much heat will melt plastic body. Position “G” provides modulation directly to the gunn diode, and Position “V” provides modulation to varactor diode of gunn source, if you have this option on your gunn source.

(7) Install resistors and solder in place, one or two at a time.

(8) Install capacitors, using care of polarity, as shown, and solder.

(9) Install small signal diodes as shown, and solder

OPTIONAL SETTINGS:

If you wish to connect a dynamic microphone, do not install the 10K resistor marked “optional”. If you wish to use an electret mike, install the resistor, since it will supply the current needed for the electret microphone to work. TTL data logic can be inserted at “data”. Use a isolation resistor of about 470 ohms.

The places marked with “*” allow for much adjustment of the microphone gain setting.

If you need more mike gain, install a wire jumper in RX and a 10 ufd capacitor in CX.
If you need the lowest mike gain, remove both RX and CX.
Inbetween, try 10 ufd CX and different values of resistors for RX to suit you.
If you have enough mike gain, the diode limiters will even the modulation deviation.

Adjust resistor “A” to set deviation. Adjust resistor “B” to set gunn voltage. Adjust resistor “C” to set varactor voltage. (This also adjusts the gunn frequency)

This ps/mod kit will accept a 3 millivolt mike level, and fully modulate a gunn source.

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